membrane with a thin centre and thick periphery. Under the microscope it is structureless. On removal it, of course, stains deeply, and thus can be readily examined.

When one attempts to raise it outwards towards the hyaloid membrane and suspensory ligament, one may succeed as far as the origin of the suspensory ligament, but behind this point it is so firmly adherent to the vitreous substance that it cannot be raised.

The notion of a membrane in front of the vitreous is supported by the behaviour of the vitreous body with its investing membranes intact in water; it will remain many days with its form quite unchanged, and during all this time it may be handled without injuring it. But if the membranes be cut so as to expose the vitreous substance to the action of the water, this substance protrudes and has a cloud-like outline very different from the sharp, definite outline or surface at the uninjured anterior face of the vitreous body where still covered by membrane. Now there is never any of this cloud-like indefinite outline or surface at the uninjured anterior face of the vitreous body. I infer, therefore, that it is not vitreous substance that here comes into contact with the water, but that it is a membrane that is not notably acted on by water.

After all these facts and considerations, I cannot doubt that there is in the perfectly fresh unaltered eye a membranous structure behind the posterior layer of the lens capsule, and that this structure has all the properties of a distinct membrane resembling the hyaloid, but differing in many respects from vitreous substance.

I need say nothing here as to the immense importance in many questions of ophthalmological practice of a definite knowledge of the existence or non-existence of a membrane limiting the vitreous body anteriorly.

[*Note added January* 15, 1891.—Since the above was sent in, I have had an opportunity of examining a series of sections of the entire human eyeball, made by Dr. Sheridan Delépine, and in all of these sections the membrane is distinctly seen *in situ*.]

IV. "On the Connexion between the Suspensory Ligament of the Crystalline Lens and the Lens Capsule." By T. P. Anderson Stuart, M.D., Professor of Physiology in the University of Sydney, N.S.W. Communicated by Professor Schäfer, F.R.S. Received January 12, 1891.

I have not been able to get a too precise statement as to the nature of this connexion, but Quain (9th ed.) says the suspensory ligament is "firmly attached" to the capsule; in another place Quain says it "joins" it. Speaking of "suspensory fibres of the lens," Quain says

that some of these "pass into continuity with the posterior capsule." Thus "attachment," "joining," and "passing into continuity" are the expressions used to indicate the connexion. It is true that the last is employed with regard to the suspensory fibres, but since these, as described, are, like the suspensory ligament, derived from the hyaloid membrane and pass like it to the lens capsule, I think we may assume that the author in "Quain" regards them—fibres and ligament—as of like nature and mode of union with the lens capsule.

Schwalbe ('Anatomie der Sinnesorgane') says the capsule is firmly united (*verwachsen*) with the zonula. Later, he speaks of the outer or zonular layer of the lens capsule being joined (*in Verbindung*) to the zonula; then again of its firm connexion (*fester Zusammenhang*) with the zonula when he uses this intimate union as an argument in favour of the zonular layer of the capsule being of connective tissue origin. In describing the zonula he says that its parts fuse (*verschmelzen*) with the capsule without any perceptible line of demarcation, and probably form the above-mentioned zonular layer. Finally, the mode of fusion is as follows: The coarser bundles break up into a network of finer fibrils, which spread out on the surface of the capsule and, becoming pointed, lose themselves (*sich verlieren*) in the substance of the capsule.

From the various statements, I think it is clear that the general notion is that there is a direct continuity of substance between the suspensory ligament and the capsule. Now the observation which I am about to describe seems rather to indicate that the suspensory ligament is *only cemented to the capsule.*

Upon opening some ox eyes that were in an advanced state of decomposition, I found that the lens was quite free in the interior of the eyeball; and, on examining it, I found that it was still enclosed in its capsule. This freeing of the lens I find to be the rule in such cases. On opening the capsule, the lens substance escaped, and on washing and staining the capsule with picrocarmine and other dyes, and on examining it in various ways, I have failed to find any roughness of surface, difference of thickness, or, in short, any indication of a rupture of tissue. The zonula seems to come away intact: is not broken or torn away. In fact, the decomposition seems to weaken the cohesion of some cement substance by which the zonula adheres to the surface of the lens capsule.

This observation seems to weaken the *argument* for an outer layer of the capsule being of connective tissue origin, and it may throw some light on cases of solution and atrophy of the suspensory ligament, on cases of detachment of the ligament from its insertions, and on cases of luxation of the lens. In any case it has a very direct bearing on the still unsettled question of the development of the lens capsule.